

**Before the Subcommittee on Oversight, Investigations, and Emergency  
Management, Committee on Transportation and Infrastructure**

**U.S. House of Representatives**

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**Program Data Quality in the  
U.S. Department of Transportation**

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Madam Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify today on the quality of program data used by the U.S. Department of Transportation (DOT). Transportation decisionmaking relies on access to good data; in many cases, good data are key to ensuring the safety of the traveling public. Although virtually all data have errors, the pursuit of perfect data is usually not necessary, and generally is not cost effective. The key is to know the level of accuracy needed and how available data measure up to these needs.

The Government Performance and Results Act of 1993 brought into focus the need for program data that provide credible, reliable, and results-oriented information about Federal programs. Such information is essential for agencies and Congress to determine the effectiveness and efficiency of Federal programs and the best use of taxpayers' money.

Our testimony today will address four issues.

**First**, while DOT has extensive data related to the Nation's transportation system and its performance, the quality of data varies considerably. A substantial part of the data has not been independently tested. There are, however, numerous reports issued by the Inspector General, the General Accounting Office (GAO), and others with a common theme--data are not complete, accurate, or timely, thereby making them of limited use for management and decisionmaking.

**Second**, DOT's ability to collect good data is hindered by inconsistent definitions, inadequate or inaccurate input of data into collection systems, and extensive reliance on other organizations such as states, transit authorities, airports, and private companies that operate airlines, railroads, and pipelines.

**Third**, complete and accurate data are essential for DOT to achieve its strategic goals related to *Safety, Mobility, Economic Growth and Trade, Human and Natural Environment, and National Security*.

- Accident and fatality data are essential to identify causes of crashes and initiate appropriate corrective measures to improve *safety*. Data that serve as precursors of safety risks also are used to manage critical safety functions. Examples include runway incursions, operational errors by air traffic controllers, and motor carrier safety violations.
- Data on the condition and performance of the Nation's transportation systems are used to determine where to invest resources to improve *mobility* or to

expand *economic growth and trade* opportunities. Examples include data on runway pavement condition, highway congestion, condition of bridges, and age of railroad and transit equipment.

- Data on the impact of transportation on air and water quality are critical to maintain our *natural environment*. Examples include data on vehicle emissions, aircraft noise, and hazardous material movements.
- Data on the vulnerability of the Nation's transportation systems to domestic and foreign threats are needed to maintain our *national security*. Examples include data on airport security, drug interdiction and illegal immigration.

**Finally**, the Department is very much aware of problems with data quality and is taking actions to improve the situation. For example, DOT improved its financial data and just received its first ever unqualified opinion on its financial statements. In the past year, safety data workshops were held, and a strategy is now being developed to improve these data.

Furthermore, just 2 months ago, the Deputy Secretary established a committee on transportation statistics. The committee brings together DOT's data and statistical expertise with a goal to improve data quality. In establishing the committee, the Deputy Secretary noted that "almost every broad study of transportation programs has underscored the need for better data, and our commitment to performance management requires we have good, quantitative information to gauge success."

## **PROGRAM DATA QUALITY IS A PROBLEM**

DOT collects and publishes extensive transportation-related statistics. For example, the Bureau of Transportation Statistics (BTS) recently published the National Transportation Statistics for 1999. This document contains about 500 pages on a wide variety of transportation data, such as runway pavement condition, mishandled baggage reports, safety data by mode, transportation fatalities by mode, and estimates of national emissions of carbon monoxide.

While the quantity of transportation-related data in this and other DOT publications is extensive, a substantial part of these data has not been independently tested. There are, however, numerous reports by GAO, our office,

and others that address the quality of specific transportation data. These reports conclude the data are not complete, accurate, or timely, thereby making them of limited use for management and decisionmaking. Following are several examples.

#### **DATA COMPLETENESS**

DOT collects and analyzes data that are used to identify transportation companies that should be subjected to safety compliance reviews. These data are used to target high-risk motor carriers (trucking and bus companies) for review. Incomplete data on motor carriers preclude them from being ranked or prioritized for review, even though they employ drivers who may have been responsible for crashes or committed serious traffic violations such as reckless or drunk driving.

Our audit of the Motor Carrier Safety Program disclosed that driver and vehicle information was not complete. For example, over 70,000 motor carriers, or 16 percent of the total population of motor carrier firms, had zero for drivers and vehicles in the database.

We recommended that the completeness of data be improved by requiring that motor carriers provide DOT with information on the number of commercial vehicles they operate and drivers they employ. Subsequent to our report, Congress enacted the Motor Carrier Safety Improvement Act of 1999. One provision of the legislation requires that motor carrier information be updated by December 2000, and periodically updated thereafter.

#### **DATA ACCURACY**

DOT distributes about \$25 billion annually to grantees based on established formulas. The accuracy of the data used in these formulas is critical for grantees to receive the proper amounts.

In 1996, we evaluated the Federal Highway Administration's methods for acquiring, reviewing, and ensuring the accuracy of data used in apportionment calculations for distribution of about \$18 billion of Federal-aid highway funds. In 1998, we also evaluated the accuracy of passenger "origin and destination data" used in the calculation of airport improvement grants and for numerous other purposes.

We concluded the data used for highway formula grants were accurate and distributions were made in compliance with statutory formulas, appropriations acts, and applicable laws. However, the passenger data used for the \$989 million airport improvement program grants did not measure up to accuracy levels expected by Department officials. DOT desired a 95 percent accuracy level, but 69 percent of the data reported by the airlines did not meet that standard.

To compensate for the unreliable data submitted by air carriers, DOT aviation analysts either requested air carriers to provide supplemental data or used adjustment factors based on prior experience with each carrier's data. We recommended that the Department replace the existing outdated and unreliable system with data directly from the air carriers' computer reservation systems.

## **DATA CURRENCY**

Current or timely data have greater uses than stale data. This is especially true where significant changes occur in relatively short periods of time. DOT has problems getting up-to-date data for program oversight.

For example, in a recent audit, we found that 70 percent of the convictions transmitted through the Commercial Drivers License Information System occurred after the 10-day timeframe mandated by the Commercial Motor Vehicle Safety

Act of 1986. The State of Ohio failed to electronically transmit up to 1,700 convictions to other licensing states for a total of 15 months, and was doing nothing to correct the problem until we asked about the discrepancy. Better oversight by the Federal Motor Carrier Safety Administration would have identified these problems.

BTS's recently published National Transportation Statistics for 1999 also demonstrates the data currency problem. For many reporting elements, the most recent data available are for 1997, with some dated back to 1990. Some examples are:

<u>Category</u>	<u>Current Year of Data</u>
U.S. airports runway pavement condition	1997
Condition of U.S. roadways	1997
Annual wasted fuel due to congestion	1996
U.S. oil and gas pipeline mileage	1990

DOT needs to find ways to obtain current data for its key indicators.

## **DIFFICULTIES COLLECTING GOOD DATA**

In order to collect accurate and useful data, there must be a clear understanding of the characteristics of the data to be captured and effective systems for collecting accurate data. The absence of either will adversely impact the data quality and diminish the value of making comparisons over time. DOT also faces significant problems collecting good data because it depends on third party reporting for so much of the data. Examples of these problems are on the following page.

## **DEFINING AND COLLECTING DATA**

Our recent review of the U.S. Coast Guard's performance measure for recreational boating safety identified two problems. First, the Coast Guard did not provide states with a good definition of what constituted a recreational boating fatality. Consequently, differences existed among the states as to what was to be reported. For example, if a recreational boater's hat fell into the water and the boater drowned trying to retrieve the hat, a state may not consider it a recreational boating fatality. However, if an oar fell into the water and the boater drowned trying to retrieve the oar, the state would report the incident to Coast Guard as a recreational boating fatality.

Second, the Coast Guard underreported fatalities by an average of 10 percent, or 79 fatalities per year. This occurred because boating fatalities were recorded in two different databases that were not routinely reconciled.

We recommended that Coast Guard improve its data accuracy by issuing a definition of what constitutes a recreational boating fatality and routinely reconciling its databases.

Another example of the need for better definitions of what is to be reported relates to airlines' reporting of on-time arrivals. DOT collects and publishes monthly statistics on the 10 major carriers showing percentages of on-time arrivals. This report provides consumers with information on the quality of air carrier services. As expected, the carriers with the best rates use these data in promotional advertising.

DOT defined "arrival" this way: "actual arrival time shall be measured by the time at which the aircraft arrives at the gate or passenger loading area." Absent

specific guidance, we found the 10 major air carriers had adopted five different definitions for gate arrival.

Airline	Gate Arrival Definition
American, Northwest, Trans World, and United	Setting Parking Brake
America West	Shutting Off Engines
Alaska and Southwest	Placing Blocks Behind Aircraft Wheels
Continental and US Airways	Opening Passenger or Cargo Door
Delta	Opening Passenger Door

The different methods used for recording the arrival time made comparisons between airlines impossible. For instance, the cargo door was opened before the passenger door in 75 percent of the flights we observed. The air carrier's ground crew opened the cargo door 1 to 4 minutes before the passenger door. Although these variances seem small or even insignificant, they can be significant when a difference of only 1 minute can cause the flight to be reported as on time or late.

As a result of our audit, DOT revised its guidance and established an industry standard that defines arrival as "when the pilot sets the aircraft parking brake after arriving at the airport gate or passenger unloading area."

## **DEPENDENCY ON OTHER ORGANIZATIONS**

One of the major challenges DOT faces in improving its data is the need to rely extensively on information provided by organizations outside DOT's control, such as states, railroads, and private companies. For example, national seat belt use is estimated from data collected by the states, using collection methods that range from random-sample surveys to general observation. Ridership on Amtrak's intercity routes is taken from data reported by Amtrak in its Annual Report. Data on maritime oil spills are initially reported to the Coast Guard by the company responsible for the spill or, in some cases, a third party.



There are disincentives and barriers to DOT's third party data collection efforts, and self-reporting is a problem. For example, the organization or individual responsible for an oil spill, and who would be liable for cleanup costs, might not report it at all or might understate the extent of damage.

States are required to report convictions of truck and bus drivers with commercial drivers licenses to the licensing states. DOT relies on these data for oversight of the commercial drivers license program. However, 26 states have programs that allow them to "mask convictions" from commercial driver records. A Tennessee program, by state statute, permits probation for traffic violations. The traffic violation is reported to the state licensing agency only if the driver commits another violation in that court's jurisdiction within a specific time period. Illinois officials estimate that 1.9 million citations for both individuals and commercial drivers are withheld from driver records annually through the masking program. Last year's motor carrier legislation closed this loophole for commercial drivers.

## **DATA QUALITY IMPACTS STRATEGIC GOALS**

The absence of meaningful, accurate, and timely data ultimately hinders managers' ability to make good decisions. Following are examples where insufficient and inaccurate data could adversely impact attainment of the Department's goals related to safety, environmental quality, and national security.

### **SAFETY GOAL**

Our audit of DOT's motor carrier safety program found that while the number of fatalities was captured, the causes of the crashes that resulted in the fatalities were not. Information is needed to determine what action could be taken to help achieve DOT's goal for a 50-percent reduction in fatalities in 10 years.

We recommended that the Federal Motor Carrier Safety Administration standardize crash data requirements and collection, and obtain and analyze crash causes based on comprehensive crash evaluations. Legislation subsequent to our report requires DOT to do a comprehensive study to determine the causes and contributing factors of crashes that involve commercial motor vehicles. DOT has begun the study. Data collection methods and forms are now being developed and crash data investigations will begin in four pilot sites in June 2000.

### **ENVIRONMENTAL QUALITY GOAL**

The Abandoned Barge Act of 1992 requires the Coast Guard to identify owners of abandoned barges, mitigate environmental or safety threats, remove barges when necessary, and hold owners liable for cleanup and removal costs. To effectively accomplish these requirements, data on the number and location of abandoned barges are essential.

We found the Coast Guard's New Orleans inventory of 599 abandoned barges was understated by at least 100 barges because records were lost or misplaced. The Coast Guard could not locate 17 of the 48 barges we selected from its inventory records. While we were trying to locate the 17 barges, we found 36 other barges that were abandoned but were not on the Coast Guard's inventory.

We recommended that the Coast Guard identify all abandoned barges, locate the owners, and initiate cleanup action and civil penalty proceedings against owners that cannot or will not undertake voluntary removal or remediation. The Coast Guard has taken effective action to address our recommendations, including initiating some cleanup actions, improving its inventory of abandoned barges, and attempting to locate and seek remediation from barge owners.

## **NATIONAL SECURITY GOAL**

A 1997 study by the President's Commission on Critical Infrastructure Protection pointed out the widespread capability to exploit the Nation's infrastructure vulnerabilities, particularly through computer networks. As a result, the President issued Presidential Decision Directive 63 requiring that the Nation's critical infrastructure be protected from intentional destructive acts.

The security of accounting systems is particularly important. Our review of computer security for an FAA financial system highlighted the vulnerability of the system due to outdated and incomplete information in the database. Nearly 30 percent of the database records contained an invalid user identification number, and lacked an employee address or supervisor telephone number. We also found that about 700 people, primarily contractor employees, who no longer worked for DOT still were in the database as authorized users.

Up-to-date user information is needed for (1) user assistance representatives to authenticate the identity of telephone callers, (2) security representatives to review the need for continued user access to information systems, and (3) ensuring that only authorized users gain access to DOT systems. We recommended that DOT identify and cancel all user accounts assigned to contractors and DOT employees who no longer worked for DOT, and require that all user accounts in the security database be certified. DOT recertified all system users, eliminated about 300 user accounts, and removed over 5,000 access privileges to DOT systems.

## **PROBLEM RECOGNITION AND CORRECTIVE ACTIONS**

Thus far, our testimony has presented the bad news. But, there is good news too. DOT has the best Strategic and Performance plans in Government. That means

DOT knows what needs to be done to improve the Nation's transportation systems and what needs to be measured to determine if management decisions, programs, and investments are achieving the intended goals.

Last year, DOT was the only agency to conduct a "dry run" for preparing the performance report required by the Government Performance and Results Act. The first official report is required by the end of this month. In its dry run, DOT was able to report current results for only 63 percent of its performance measures. The most common problem was getting prior-year data from third parties. Since then, the Department has been working to find ways to fill these data gaps and expects to have some, if only preliminary data, for 90 percent of its 1999 performance measures.

The most significant indication of DOT's efforts to improve data quality was the extraordinary and labor-intensive effort that produced financial data sufficient to earn DOT its first "clean" audit opinion. Clearly, the accuracy of DOT's financial data has improved significantly.

Last year, we issued a disclaimer of opinion on DOT's financial statements, primarily because of problems with property accounts in FAA. FAA acknowledged its property accounting systems were inadequate. Using alternative approaches in Fiscal Year 1999, FAA quantified the cost of its property inventory and appropriately added about \$4 billion to its records. This adjustment could be very important in the future. If FAA fully implements user fees as envisioned in the President's budget, it will be able to recover about \$200 million annually for costs associated with this property.

As DOT enters the new millenium, it must have program data that are complete, accurate, and timely. DOT also must be able to link cost information to

performance measures in order to assess the cost effectiveness of its major programs. System changes are needed to produce quality data and make these linkages.

DOT recognizes that its program data quality and financial systems can and must be improved. Efforts are underway to improve data for the annual performance report, and DOT is replacing its financial and accounting systems for keeping financial data current and accurate. DOT plans to have a state-of-the-art financial management and accounting system fully operational by June 30, 2001.

We in the OIG have been doing, and will continue to do, audits and evaluations of key program and financial data. As in the past, the Congress will be advised of the problems we find.

Madam Chairman, this concludes our statement. I would be pleased to answer any questions.